

Second Preliminary Amendment

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Applicant(s): Buswell et al.

Serial No.: 10/633,766

Filed: 4 August 2003

For: INTAKE DEVICE FOR USE WITH INTERNAL COMBUSTION ENGINES**Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Original) A device for use with an internal combustion engine, the device comprising:
an insert body portion sized to be received within an opening defined in an intake path of an internal combustion engine; and
at least one passage surface defining at least one passage about an axis through the insert body portion, wherein the at least one passage surface defines at least one channel.
2. (Original) The device of claim 1, wherein at least a portion of the at least one channel is at an angle relative to the axis of the passage.
3. (Original) The device of claim 1, wherein the at least one passage surface defines a plurality of channels, and further wherein each of the plurality of channels is at an angle relative to the axis of the passage.
4. (Original) The device of claim 3, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface sharing an edge thereof with the first channel surface.
5. (Original) The device of claim 1, wherein the at least one passage surface defines a plurality of channels continuously about an inner circumference of the passage, and further wherein at least a portion of each channel is at an angle relative to the axis of the passage.
6. (Original) The device of claim 1, wherein the at least one channel is defined by a single channel surface, and further wherein the single channel surface has a curved portion with a predetermined radius of curvature.

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7. (Original) The device of claim 1, wherein the at least one channel is defined by a first channel surface and a second channel surface.
8. (Original) The device of claim 7, wherein at least one of the first channel surface and the second channel surface is a substantially planar surface.
9. (Original) The device of claim 7, wherein at least one of the first channel surface and second channel surface is a curved surface.
10. (Original) The device of claim 1, wherein the at least one channel is defined by a plurality of channel surfaces.
11. (Original) The device of claim 10, wherein the plurality of channel surfaces form one of a substantially V-type channel or a substantially rectangular-type channel.
12. (Original) The device of claim 1, wherein the at least one channel is defined by a first channel surface and a second channel surface, wherein at least one of the first channel surface and the second channel surface is a curved surface having a radius of curvature, and further wherein the center of the radius of curvature is outside of the passage.
13. (Original) The device of claim 1, wherein the at least one channel is defined by a first channel surface and a second channel surface, wherein at least one of the first channel surface and the second channel surface is a curved surface having a radius of curvature, and further wherein the center of the radius of curvature is on the same side relative to the curved surface as the axis of the passage.
14. (Original) The device of claim 1, wherein at least a portion of the at least one passage surface defining the passage is a surface that forms at least a part of a venturi, wherein the at

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least one channel is defined by the at least a portion of the at least one passage surface.

15. (Original) The device of claim 14, wherein the continuous surface is closest to the axis of the passage at a position substantially equidistant between the first opening region and the second opening region of the passage surface.

16. (Original) A device for use with an internal combustion engine, the device comprising:
an insert body portion sized to be received within an opening defined in an intake path of an internal combustion engine; and

at least one passage surface defining at least one passage about an axis through the insert body portion, wherein at least a portion of the passage surface defining the passage is a surface that extends between a first opening region of the passage inward towards the axis of the passage and then further extends away from the axis of the passage towards a second opening region of the passage, and further wherein the at least a portion of the at least one passage surface defines at least one channel.

17. (Original) The device of claim 16, wherein at least a portion of the at least one channel is at an angle relative to the axis of the passage.

18. (Original) The device of claim 16, wherein the at least one passage surface defines a plurality of channels, and further wherein each of the plurality of channels is at an angle relative to the axis of the passage.

19. (Original) The device of claim 16, wherein the at least one passage surface defines a plurality of channels continuously about an inner circumference of the passage, and further wherein at least a portion of each channel is at an angle relative to the axis of the passage.

20. (Original) A device for use with an internal combustion engine, the device comprising:

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a body portion; and

at least one passage surface defining at least one passage about an axis through the body portion, wherein the at least one passage surface defines at least one channel extending from a first end region to a second end region, and further wherein the at least one passage surface comprises a tapered surface from the first end region to the second end region.

21. (Original) The device of claim 20, wherein at least a portion of the at least one channel is at an angle relative to the axis of the passage.
22. (Original) The device of claim 20, wherein the body portion defines a first opening of the passage proximate the first end region and a second opening of the passage proximate the second end region, and further wherein the first and second openings are of a different size.
23. (Original) The device of claim 20, wherein the at least one passage surface defines a plurality of channels, and further wherein each of the plurality of channels is at an angle relative to the axis of the passage.
24. (Original) The device of claim 23, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface sharing an edge thereof with the first channel surface.
25. (Original) The device of claim 20, wherein the at least one passage surface defines a plurality of channels continuously about an inner circumference of the passage, and further wherein at least a portion of each channel is at an angle relative to the axis of the passage.
26. (Original) The device of claim 20, wherein the body portion is an insert body portion sized to be positioned within an opening of another device body.

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27. (Original) A device for use with an internal combustion engine, the device comprising:
a body portion; and
at least one passage surface defining at least one passage about an axis through the body portion, wherein the passage has an inner circumference, wherein the passage surface defines a plurality of channels continuously about the inner circumference of the passage.
28. (Original) The device of claim 27, wherein one or more of the plurality of channels is defined by a single channel surface, and further wherein the single channel surface has a curved portion with a predetermined radius of curvature.
29. (Original) The device of claim 27, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface.
30. (Original) The device of claim 29, wherein at least one of the first channel surface and the second channel surface is a substantially planar surface.
31. (Original) The device of claim 29, wherein at least one of the first channel surface and second channel surface is a curved surface.
32. (Original) The device of claim 27, wherein one or more of the plurality of channels is defined by a plurality of channel surfaces.
33. (Original) The device of claim 32, wherein the plurality of channel surfaces form one of a substantially V-type channel or a substantially rectangular-type channel.
34. (New) A device for use with an internal combustion engine, the device comprising:
a body portion; and
at least one passage surface defining at least one passage about an axis through the body

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portion, wherein the passage surface defines a plurality of channels about the axis, wherein one or more of the plurality of channels extend along a length of the passage and are defined by one or more channel surfaces, and further wherein at least one of the one or more channel surfaces is at a predetermined angle relative to the axis along the entire length.

35. (New) The device of claim 34, wherein one or more of the plurality of channels is defined by a single channel surface extending from a first region of the passage to a second region of the passage along the length, and further wherein the single channel surface has a curved portion with a predetermined radius of curvature.

36. (New) The device of claim 34, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface.

37. (New) The device of claim 36, wherein at least one of the first channel surface and the second channel surface is a substantially planar surface.

38. (New) The device of claim 36, wherein at least one of the first channel surface and second channel surface is a curved surface.

39. (New) The device of claim 34, wherein one or more of the plurality of channels is defined by a plurality of channel surfaces.

40. (New) The device of claim 39, wherein the plurality of channel surfaces form one of a substantially V-type channel or a substantially rectangular-type channel.

41. (New) The device of claim 34, wherein the passage has an inner circumference, and further wherein the plurality of channels are defined continuously about the inner circumference of the passage.

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42. (New) A device for use with an internal combustion engine, the device comprising:
a body portion; and
at least one passage surface defining at least one passage about an axis through the body portion, wherein at least a portion of the at least one passage surface defining the at least one passage forms a venturi, and further wherein the at least a portion of the at least one passage surface defines a plurality of channels.
43. (New) The device of claim 42, wherein at least a portion of at least one channel of the plurality of channels is at an angle relative to the axis.
44. (New) The device of claim 42, wherein the at least one passage surface defines a plurality of channels continuously about an inner circumference of the passage.
45. (New) The device of claim 44, wherein at least a portion of each channel is at an angle relative to the axis of the passage.
46. (New) The device of claim 42, wherein the body portion defines a first opening of the passage proximate a first region of the passage and a second opening of the passage proximate a second region of the passage, and further wherein the first and second openings are of a different size.
47. (New) The device of claim 42, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface sharing an edge thereof with the first channel surface.
48. (New) The device of claim 42, wherein the body portion is an insert body portion sized to be positioned within an opening of another device body.

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49. (New) The device of claim 42, wherein one or more of the plurality of channels is defined by a single channel surface, and further wherein the single channel surface has a curved portion with a predetermined radius of curvature.
50. (New) The device of claim 42, wherein one or more of the plurality of channels is defined by a first channel surface and a second channel surface.
51. (New) The device of claim 50, wherein at least one of the first channel surface and the second channel surface is a substantially planar surface.
52. (New) The device of claim 50, wherein at least one of the first channel surface and second channel surface is a curved surface.
53. (New) The device of claim 42, wherein one or more of the plurality of channels is defined by a plurality of channel surfaces.
54. (New) The device of claim 53, wherein the plurality of channel surfaces form one of a substantially V-type channel or a substantially rectangular-type channel.